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Three consecutive experiments examined the effect of offering college students performance-contingent points toward their final course grade under various combinations of knowledge of correct response and rules with examples of how to perform the task. Students who were offered points and received rules with examples scored lower on an immediate post test than students who received rules with examples but were not offered the points. The situation was reversed for students who did not receive rules with examples: post test scores were higher when points were offered. This disordinal interaction between performance-contingent points and rules with examples was significant ($p < .05$) in all three experiments. The main effect of rules with examples was significant ($p < .001$) across all three studies. Neither points nor knowledge of correct response produced significant main effects. (Author/MV)

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**DIFFERENTIAL INCENTIVE EFFECTS
UNDER VARYING INSTRUCTION CONDITIONS**

By

James L. Eubanks
Arizona State University
Tempe, Arizona 85281

FLYING TRAINING DIVISION
Williams Air Force Base, Arizona 85224

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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July 1976
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DIFFERENTIAL EFFECTS OF INCENTIVE UNDER VARYING CONDITIONS OF INSTRUCTION

Introduction

Recently, a series of studies was initiated to determine the variables that contribute to learner performance in an empirically verified instructional program (Tenpas, Reiser, Kearns, Booth, & Deden; 1974; Tenpas & Higgins, 1974). The Aircraft Instrument Comprehension (AIC) task (Higgins, 1973; 1975) used in these studies was systematically designed to facilitate the study of instructional cues and examples, practice, feedback and incentives. AFROTC cadets who either practiced the AIC task or were offered a performance-contingent incentive performed significantly faster on the posttest than learners who did not receive these treatments (Reiser, 1975). No significant feedback effects have been observed in any of these studies.

At present, the strongest conclusion that emerges from these studies is the prepotent effect that instructional cues and examples alone have in enhancing learner performance on the AIC task. In fact, the effects of this treatment are such that other treatments such as practice and feedback--treatments for which an extensive research literature supports their widespread use in education and training--do little to further enhance learner post instruction performance. Incentive effects, however, have been more powerful. In the first study to be described in the present report, an extrinsic incentive offered college students in the form of points toward their final course grade actually attenuated the facilitative effects of instructional cues and examples previously observed in the series of studies described previously. That

is, students who were offered an incentive and received instructional cues and examples obtained significantly lower scores than learners who received instructional cues and examples but were not offered a performance-contingent incentive. The situation was reversed for learners who did not receive instructional cues and examples: performance was significantly higher for those learners who were offered an incentive. This effect was replicated in two subsequent studies described in the present report.

The three studies described in the present report represent an attempt to delineate the controlling variables of this anomalous effect of incentive. The apparent nature of this anomaly has its foundation in the range of experimental conditions described in the research literature under which incentive has been reported to enhance learner proficiency (cf. Lipe & Jung, 1971). As will be pointed out in the discussion of the present results, however, the facilitative effects of incentive are not always supported by the literature.

Experiment I

Incentive effects in previous studies using the AIC task (Reiser, 1975) have been manifested in reducing the amount of time learners require to complete the posttest. However, the posttest scores of these learners did not differ significantly from the scores of learners who did not receive an incentive. These results were obtained with learners who demonstrated a high level of proficiency on the pretest given prior to providing them with the instructional materials. Consequently, Experiment I was directed at determinin

the extent to which these results might apply to learners who do not possess high level entry proficiency on the AIC task. Incentive was varied by offering undergraduate education students performance-contingent points toward their final grades. Feedback in the form of knowledge of correct response (KCR) was either present or absent, and information provided the learner regarding how to perform the task (i.e., instructional cues and examples) was either present or absent.

Method

Eighty students (64 female and 16 male) enrolled in a senior level course for education majors were randomly assigned to the experimental conditions.

Variations of a set of self-instructional materials (Higgins, 1975) were studied. The program was designed to achieve the following instructional objective:

Given four illustrations of aircraft varying in bank, pitch, and heading, the student will identify the illustration that most nearly represents the position indicated on a compass and an artificial horizon.

Instruction in the program consisted of one instructional cue and three examples for each of three dimensions (pitch, bank, and heading) of the concept presented (aircraft position). Eight examples were also presented in which these dimensions were combined. Practice consisted of one to four items for each dimension, followed by an additional ten practice items at the end of the program. All practice items required

subjects to identify which of two or more drawings of an aircraft in flight most nearly represented the position shown on an attitude indicator and a heading indicator. Feedback consisted of a latent image (A. B. Dick Company) in the form of an "X" that appeared immediately when subjects touched the appropriate space on the answer sheet with the special marking pen provided.

Upon entering the classroom, subjects were randomly assigned the experimental materials, which consisted of an instructional booklet, pre- and posttests, answer sheet, and marking pen. A set of standard instructions was read to the subjects. The subjects were told that the study was concerned with validating a self-instructional program developed by faculty members. Next, all subjects were instructed to complete a 9-item pretest, for which three minutes were allotted. The subjects were then told to read the preliminary instructions on the first page of their tests.

Written directions for the incentive condition were located at the beginning of the instructional booklet. The directions indicated the subjects would be required to take a test on the materials after completing them. They were also informed that both speed and accuracy were factors used in determining their scores on the posttest, and that they could earn up to ten points toward their final grade in the course (about 10% of the total points possible for the course), depending on the score they attained on the posttest. Subjects in the no-incentive conditions were told that both speed and accuracy were important on the posttest and that the

developers of the program would appreciate their "best efforts." Instruction was manipulated by removing the instructional cues and examples, thus leaving only the practice items in the instructional booklets that were provided for subjects in the no-instruction conditions. All subjects received written directions indicating that different materials were assigned to different subjects, and that they should not be alarmed if other persons completed the experiment before they did. They were directed orally to record the time (flashed on 4 x 6 inch cards at 15-second intervals at the front of the room) when they finished the program and the posttest.

Dependent measures were time and criterion posttest scores. The experimental design consisted of a pretest-treatment-posttest sequence. A 2 x 2 x 2 completely randomized analysis of variance included the following factors: instruction (presence or absence), incentive (presence or absence), and feedback in the form of KCR (presence or absence).

Results

Table 1 shows the mean pretest scores, posttest scores, and posttest time for all treatment groups. An analysis of variance on pretest scores (Table 2) revealed a significant difference both for feedback ($p < .05$) and for feedback x instruction interaction ($p < .01$). Consequently, an analysis of covariance was used to evaluate differences among treatment groups on posttest scores, using pretest scores as the covariate.

The overall mean for the group receiving instruction was 27.80 and 15.65 for the group not receiving instruction. Table 3 indicates that the difference was highly significant ($p < .001$). An omega-squared

TABLE 1

MEANS OF DEPENDENT VARIABLES BY
EXPERIMENTAL GROUPS, EXPERIMENT I

Group	<u>Extrinsic Incentive</u>			<u>No Extrinsic Incentive</u>		
	Pretest Score	Posttest Score	Posttest Time	Pretest Score	Posttest Score	Posttest Time
Instruction/Feedback	2.80	24.80	13.60	2.60	29.60	12.52
Instruction/No Feedback	4.40	26.90	12.70	3.90	29.90	12.37
No Instruction/Feedback	3.80	19.80	10.45	3.20	14.20	10.37
No Instruction/No Feedback	3.30	15.00	10.92	3.30	13.60	9.75

NOTE:

Maximum Pretest Score = 9

Maximum Posttest Score = 36

Posttest Time is in Minutes

Table 2
ANALYSIS OF VARIANCE: PRETEST SCORES

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	.01	1	.00
Feedback	7.81	1	4.06*
Incentive	2.11	1	1.10
Instruction x Feedback	13.61	1	7.06**
Instruction x Incentive	.01	1	.00
Feedback x Incentive	.11	1	.06
Instruction x Feedback x Incentive	1.01	1	.53
Within	1.93	72	

* $p < .05$

** $p < .01$

Table 3

ANALYSIS OF COVARIANCE: POSTTEST SCORES
COVARIED WITH PRETEST SCORES

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	2,942.23	1	101.69**
Feedback	30.17	1	1.04
Incentive	4.29	1	.15
Instruction x Feedback	20.55	1	1.02
Instruction x Incentive	276.82	1	9.58*
Feedback x Incentive	5.79	1	.20
Instruction x Feedback x Incentive	34.36	1	1.18
Within	28.93	71	

* $p < .01$ ** $p < .001$

(Hays, 1963) comparison revealed that instruction accounted for 52% of the total variance. The overall mean for the group that received KCR (22.10) did not differ significantly from the mean of the group that did not receive feedback (21.35).

Although the means did not differ significantly between the group that received an incentive and the group that did not (21.62 and 21.82, respectively), a significant interaction was obtained between instruction and incentive ($F = 9.18$, $df = 1/71$, $p < .003$). Figure 1 shows, however, that the interaction was not in the direction that might be anticipated. The group that received instruction and an incentive obtained a lower mean posttest score than the group that received instruction without an incentive. The situation was reversed for the group that did not receive instruction: subjects who received an incentive surpassed the mean performance of subjects that did not receive an incentive. An omega-squared comparison indicated that this interaction accounted for 4% of the total variance.

Table 4 indicates that the overall mean time for the group that received instruction (12.79) differed significantly from the group that did not receive instruction (10.37; $F = 12.05$, $df = 1/72$, $p < .01$). An omega-squared comparison revealed that instruction contributed to 12% of the total variance in posttest time. Neither feedback nor incentive contributed significantly to posttest time differences. None of the interaction effects were significant with respect to posttest time.

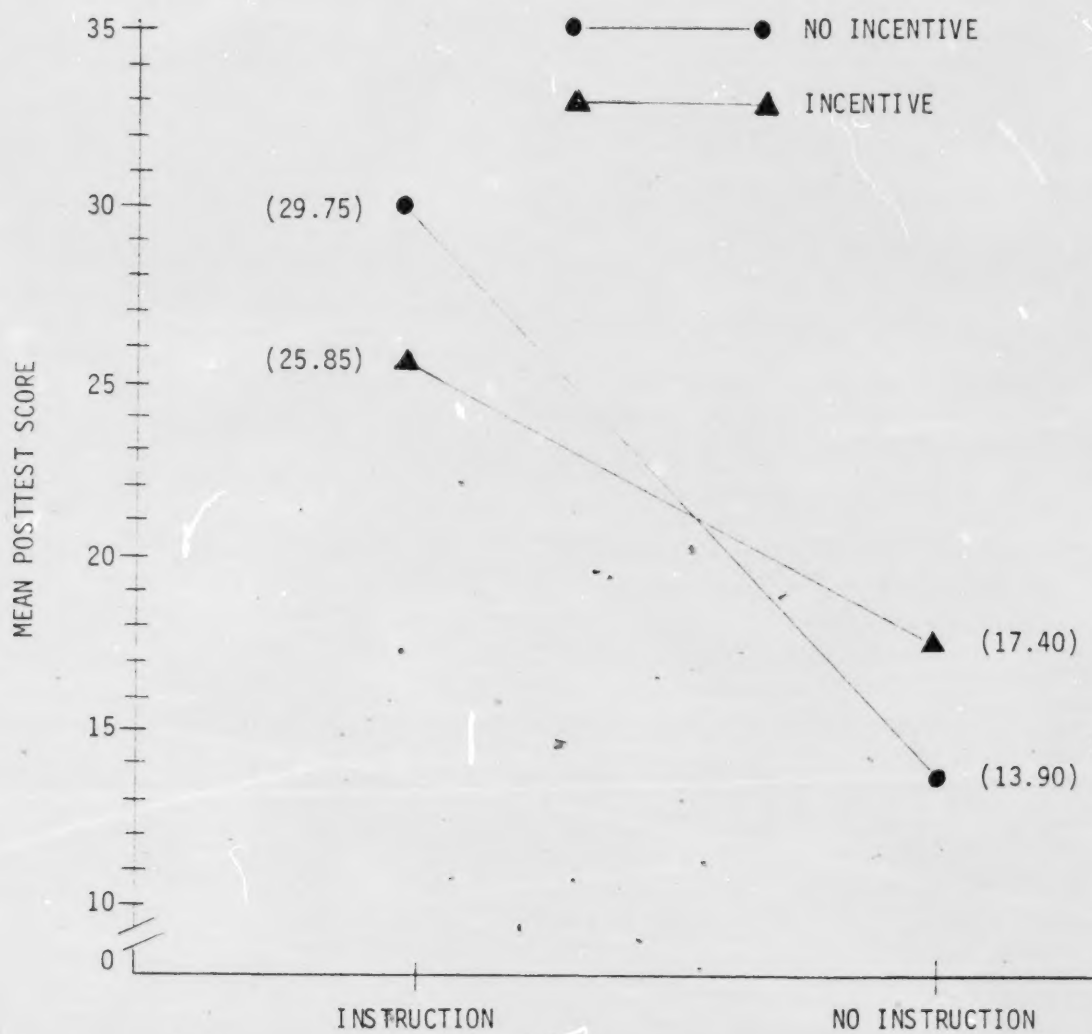


Figure 1. Mean number of correct responses on immediate posttest for incentive and no incentive groups under different conditions of instruction: Experiment I.

Table 4
ANALYSIS OF VARIANCE: POSTTEST TIME

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	118.20	1	12.05*
Feedback	1.88	1	.19
Incentive	8.61	1	.87
Instruction x Feedback	1.07	1	.11
Instruction x Incentive	.02	1	.00
Feedback x Incentive	.18	1	.02
Instruction x Incentive x Feedback	4.18	1	.42
Within	9.81	72	

* $p < .001$

Experiment II

The results of Experiment I indicated that an extrinsic incentive offered learners contingent on their posttest performance can have deleterious effects on that performance. That is, learners who received instruction on the AIC task and were offered a performance-contingent incentive tended to obtain lower scores on the posttest than learners who received instruction but were not offered an incentive contingent on their posttest performance. In an attempt to determine the reliability of this effect, incentive was again varied by offering undergraduate students points toward their final grades with instruction either present or absent.

Method

Thirty-five students (15 female and 20 male) enrolled in two graduate-level courses for education majors were randomly assigned to the experimental conditions. The materials in this study remained identical to those described in Experiment I.

The procedures were essentially identical to those reported in Experiment I. The only salient difference in method resulted from using two intact groups in the present study; consequently, the procedures were repeated once for each group. The experimental sessions were conducted consecutively in order to minimize the chance of communication among the subjects regarding the extrinsic incentive that was offered.

The criterion measures remained identical to those described in Experiment I. A 2 x 2 completely randomized analysis of variance included

the following factors: instruction (presence or absence), and the presence or absence of an extrinsic incentive (10 points toward the final course grade). Feedback in the form of knowledge of correct response (KCR) was identical to that described in Experiment I, and was present in all experimental conditions.

Results

Mean pretest scores, posttest scores, and posttest times for all treatment conditions are presented in Table 5. None of the differences in pretest scores were statistically significant for the treatment groups. The overall mean for the group receiving instruction was 27.36 and for the group not receiving instruction 19.81. An analysis of variance (Table 6) indicated that this difference exceeded the .001 level of confidence. An omega-squared comparison revealed that instruction accounted for 54% of the total variance in posttest scores.

The overall mean for the group that received an extrinsic incentive (23.36) did not differ significantly from the mean of the group that was not offered a performance-contingent incentive (23.81). However, a significant interaction was again obtained between instruction and incentive ($F = 4.11$, $df = 1/31$, $p < .05$). This interaction is depicted in Figure 2; an omega-squared comparison indicated that this interaction accounted for 11% of the total variance. A comparison between Figure 2 and Figure 1 indicates the consistency of this combined effect of incentive and instruction across Experiments I and II. None of the treatment groups differed significantly with respect to posttest time.

TABLE 5

MEANS OF DEPENDENT VARIABLES
BY EXPERIMENTAL GROUPS, EXPERIMENT II

GROUP	Pretest Score	Posttest Score	Posttest Time
Instruction/Incentive	3.12	25.62	13.43
Instruction/No Incentive	3.11	29.11	12.57
No Instruction/Incentive	3.00	22.00	11.47
No Instruction/No Incentive	3.37	17.62	11.43

NOTE:

Maximum Pretest Score = 9

Maximum Posttest Score = 36

Posttest Time is in Minutes

Table 6
ANALYSIS OF VARIANCE: POSTTEST SCORES

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	482.18	1	14.07**
Incentive	2.57	1	.07
Instruction x Incentive	140.92	1	4.11*
Within	34.62	31	

* $p < .05$

** $p < .001$

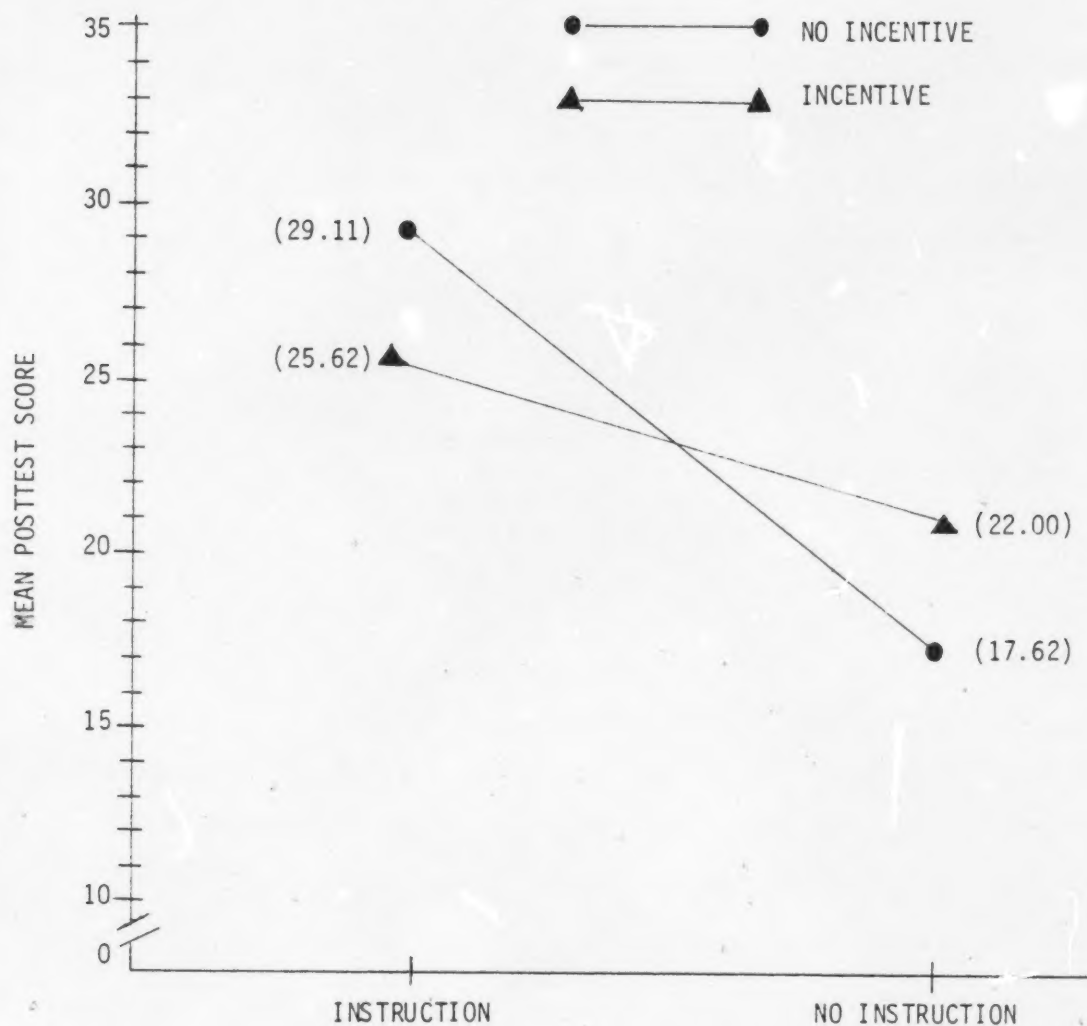


Figure 2. Mean number of correct responses on immediate posttest for incentive and no incentive groups under different conditions of instruction: Experiment II.

Experiment III

In the previous series of studies using the AIC task, learners were always informed that their incentive would be contingent on both the number of items answered correctly on the posttest and the speed with which they completed the test. This compounding of contingencies makes it difficult to determine the contribution of each contingency to performance. That is, a determination cannot be made regarding the relative contribution of the rate contingency--as opposed to the score contingency--in controlling posttest performance. The rate requirement placed on the posttest may interact with incentive to depress the performance of learners who receive instruction. Posttest performance of learners who receive instruction may indeed be attenuated by incentive as a consequence of the requirement placed on the task.

In order to investigate the effects of this rate contingency on the AIC task, learners in the present study either received directions indicating that an incentive (points toward their course grade) would be contingent on both speed and number correct on the posttest, or they were told that the incentive was dependent only on the number of items answered correctly. This manipulation will be subsequently referred to as the posttest performance target condition. Additional manipulations included the presence or absence of instruction in the form of cues and examples; an extrinsic incentive was also either present or absent from the task.

Method

Sixty-one education students (22 male, 39 female) were randomly assigned to the experimental conditions.

Variations of the AIC task described in Experiment I were used. In order to maximize the potential effects of incentive in the present study, subjects in the incentive conditions received oral directions describing the incentive--in addition to the standard written directions employed in previous experiments. Oral directions indicated that the subjects could earn up to ten points in the course in which they were enrolled, and that the points would be averaged into their final course grades. Written directions regarding the incentive were similar to those employed in Experiment II, except that the points were related specifically to the course in which the subjects were enrolled. Oral and written directions were also provided for subjects in the no incentive conditions which indicated that "... the instructors of the course want to demonstrate some basic principles of instruction and how these principles relate to student performance, so do the best you can on the instructional program and on the performance test."

Subjects randomly assigned to the incentive conditions were administered the pretest, instructional booklet, and posttest in a separate classroom from the one used by subjects that were randomly assigned to the no incentive conditions. Upon entering the classroom, subjects were asked to complete the nine-item pretest, for which three minutes were allotted. Next, subjects were read the oral directions described previously and were asked to read the written directions that occurred on the first page of their instructional booklets. Subjects were then instructed orally to complete the instructional booklet assigned to them and to record their completion times for the instructional booklets. Immediately upon completing their instructional booklets, subjects read the directions inside the posttest booklet assigned to them. Next, the subjects recorded their start time for the

posttest, completed the posttest items, and recorded their completion times for the posttest. Written directions inside the cover of the posttest reiterated the incentive conditions as described previously.

The posttest performance target was manipulated through written directions that occurred inside the front cover of both the instructional booklet and the posttest booklet. One set of directions informed the subjects that their posttest scores would be determined by the number of items answered correctly; the other set informed subjects that their scores would be determined by both number of items correct and the speed with which they completed the posttest.

Subjects in the instruction groups received intact instructional booklets which included the cues, examples, and practice items. Subjects under the no-instruction conditions received instructional booklets with all cues and examples deleted, thus leaving only the practice items for the subjects in the no-instruction conditions to respond to.

A pretest-treatment-posttest experimental design was employed. A $2 \times 2 \times 2$ completely randomized analysis of variance consisted of the following factors: instruction (presence or absence), incentive (presence or absence), and posttest performance target (posttest score only, or score and speed of posttest completion). Dependent measures were posttest score and posttest time. Separate univariate analysis of variance were run on each dependent measure.

Results

Table 7 presents the pretest scores, posttest scores, and posttest times for all treatment groups. An analysis of variance on pretest scores (Table 8) indicated differences that exceeded the .05 level of significance for subjects in the performance requirement conditions. An analysis

TABLE 7

MEANS OF DEPENDENT VARIABLES BY
EXPERIMENTAL GROUPS, EXPERIMENT III

GROUP	<u>Extrinsic Incentive</u>			<u>No Extrinsic Incentive</u>		
	Pretest Score	Posttest Score	Posttest Time	Pretest Score	Posttest Score	Posttest Time
Instruction/Score + Time	4.00	21.00	13.86	3.86	28.14	12.68
Instruction/Score Only	3.62	29.50	13.97	2.86	33.14	14.46
No Instruction/Score + Time	4.12	21.62	15.59	4.28	18.43	14.07
No Instruction/Score Only	2.71	18.00	17.32	3.20	14.60	14.08

NOTE:

Maximum Pretest Score = 9

Maximum Posttest Score = 36

Posttest Time is in Minutes

Table 8
ANALYSIS OF VARIANCE: PRETEST SCORES

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	.00	1	.00
Incentive	.06	1	.03
Posttest Performance Target (PPT)	14.08	1	6.17 *
Instruction x Incentive	2.28	1	.99
Instruction x PPT	1.18	1	.52
Incentive x PPT	.09	1	.04
Instruction x Incentive x PPT	.85	1	.37
Within	2.28	53	

* $p < .01$

of covariance was used to evaluate differences in posttest scores, using pretest scores as a covariate. Table 9 reveals a significant main effect for instruction ($F = 28.12$, $df = 1/52$, $p < .001$). Neither incentive or performance target conditions yielded significant differences. Significant effects were obtained for both the instruction x contingency interaction and for the instruction x incentive interaction. The incentive x contingency x instruction interaction was not significant. The instruction x performance target interaction is depicted in Figure 3.

Figure 4 shows the effects of performance target on the instruction x incentive interaction. Although the mean posttest scores of learners who were only directed to respond accurately are slightly higher than the scores of learners who were directed to respond both rapidly and accurately, a Sheffé test for differences among means (Myers, 1969) indicated that these differences were not statistically significant. More important, however, is the consistency in the form of the interaction between instruction and incentive, regardless of the posttest performance target directions. That is, the instruction x incentive interaction did not change as a function of the performance target imposed. None of the differences were statistically significant for posttest time.

Discussion

In all previous studies using the AIC task, incentives offered learners were contingent on both the posttest score obtained and the time required to complete the posttest. Consequently, an attempt was made in Experiment III to isolate the effects of this compound performance contingency (performance target) in contributing to the performance decrement observed with

Table 9

ANALYSIS OF COVARIANCE: POSTTEST SCORES
COVARIED WITH PRETEST SCORES

<u>Source of Variation</u>	<u>MS</u>	<u>df</u>	<u>F</u>
Instruction	1,541.71	1	28.12***
Incentive	2.96	1	.05
Posttest Performance Target (PPT)	8.40	1	.15
Instruction x Incentive	294.44	1	5.37*
Instruction x PPT	422.79	1	7.71**
Incentive x PPT	12.34	1	.23
Instruction x Incentive x PPT	11.33	1	.20
Within	53.89	52	

* $p < .025$ ** $p < .01$ *** $p < .001$

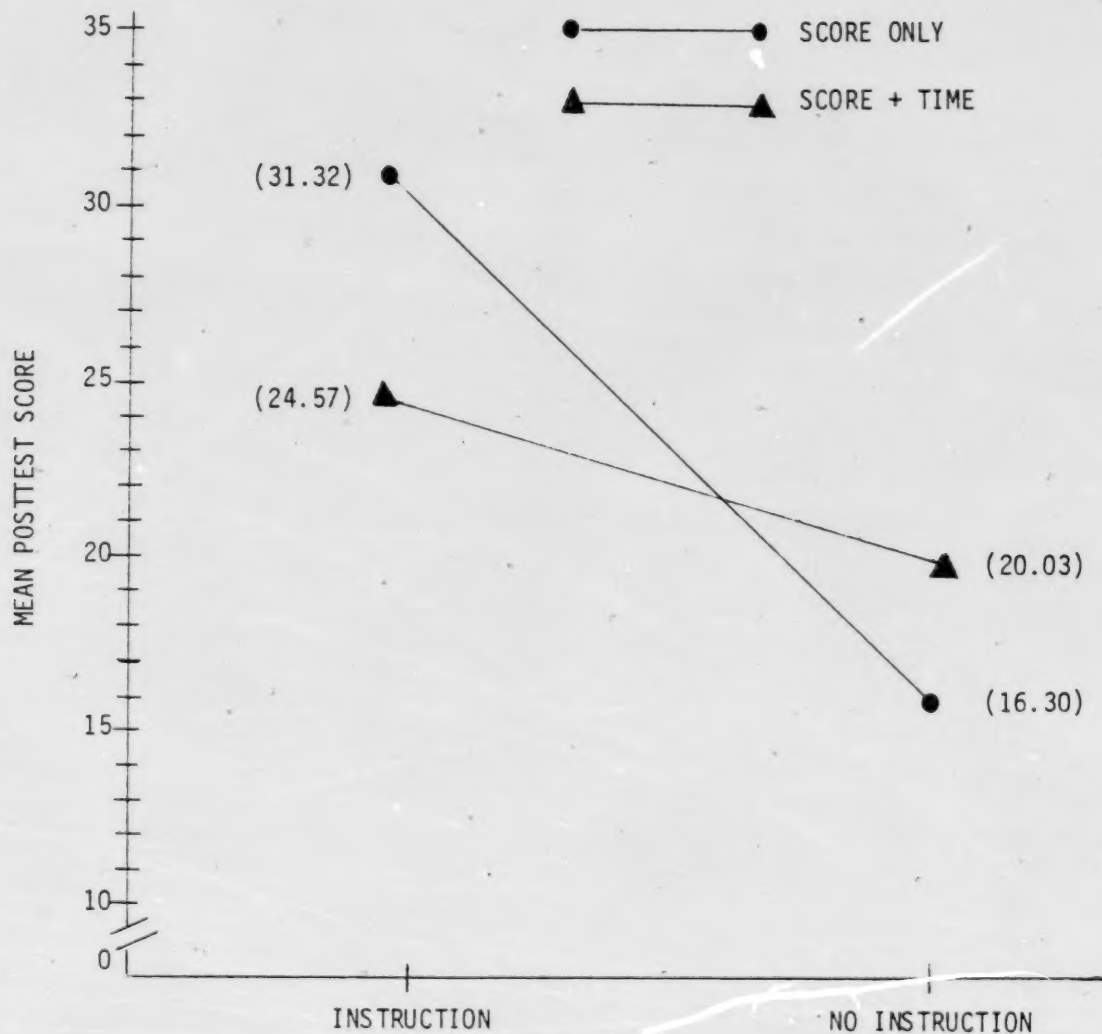


Figure 3. Mean number of correct responses on immediate posttest for score + time and score only performance target groups under different conditions of instruction: Experiment III.

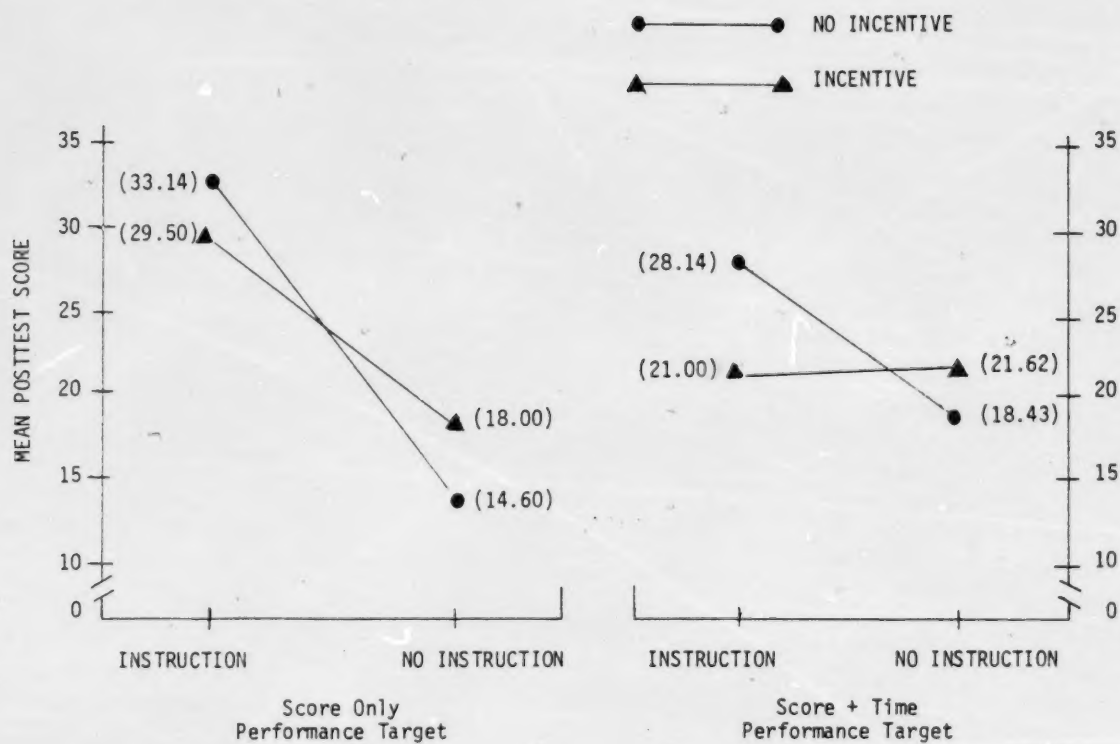


Figure 4. Mean number of correct responses on immediate posttest for incentive and no incentive groups under conditions of instruction and no instruction contrasted with different performance target conditions.

learners who receive instruction and are offered a performance-contingent incentive. Although the results are not as clear-cut as might be desired due to an instruction x performance target per se, the ordering of means across instruction and incentive (cf. Figure 4) did not change as a function of the performance target imposed. That is, the time requirement imposed on the AIC task does not appear to moderate the effect of incentive in lowering posttest scores under conditions of instruction.

General Discussion

The results of the present experiments indicate that (a) instruction in the form of cues and examples is a predominant source of variance in accounting for learner performance on the AIC task, and (b) the facilitative effect of instruction in performing this task is consistently attenuated when an extrinsic incentive is offered learners contingent on their posttest performance. The prepotent effect of instruction in controlling learner performance is in accord with previous studies using the AIC task (Eubanks, 1975; Reiser, 1975; Tenpas, 1974; Tenpas & Higgins, 1974; Tenpas, Reiser, Kearns, Booth, & Deden, 1974). The effect of incentive in lowering the posttest scores of learners who receive instruction, however, is markedly dissonant with the substantial body of experimental evidence (cf. Lipe & Jung, 1971) indicating that similar incentives can facilitate learner performance under a variety of experimental conditions.

Although the experimental literature generally indicates a facilitative effect of incentive on performance, previous instances of an incentive decrement effect have been reported. Frase, Patrick, and Schumer (1970), for instance, found that the advantage of frequently inserting questions in prose material was diminished under conditions of "high" reward (\$.10 for each correct answer on an immediate posttest). Similarly, Sullivan, Baker, and Schutz (1967) failed to obtain a facilitative effect on learner performance attributable to monetary incentives offered AFROTC cadets. In a subsequent study, however, Sullivan, Schutz, and Baker (1971) obtained an incentive enhancement effect by offering the cadets a different incentive--release from an early morning close-order drill. The Sullivan et. al., data suggest that failures to obtain facilitative effects due to incentive, where they occur, may often be attributable to the lack of a sufficiently powerful incentive to control performance.

In the present experiments, it might be argued that the differential effectiveness of various incentives plays a role in accounting for the apparent incentive decrement effect obtained. That is, learners told to "... do your best ..." as opposed to "...you can earn up to ten points toward your final grade in this course ..." may have been operating under a relatively powerful task-intrinsic incentive. Indeed, the task intrinsic incentive conditions in these studies may have functioned as a more powerful incentive than the extrinsic incentive that was offered, thus accounting for the elevated performance of learners receiving instruction under the nominal "absence of incentive" conditions. However, this interpretation does not account for the

superior performance by learners offered the extrinsic incentive under conditions of no instruction.

It is also possible that the attenuative effect of incentive under conditions of instruction is unique to the particular combination of task-subjects-setting employed in the present studies. Although further research is definitely indicated in order to determine the range of experimental conditions under which incentive can suppress performance, this account offers little in the way of an explanation regarding why the effect occurs under the current experimental conditions. A recent study by Wolk and Ducette (1974) suggests that incentive can have deleterious effects under experimental conditions other than those employed in the present studies. Using a proof-reading task, Wolk and Ducette obtained a marked performance decrement on incidental learning measures when learners were given instructions regarding the task requirements and informed that the three highest performers would receive prizes of \$50.00, \$30.00, and \$10.00. Learners who were not given task-related instructions, on the other hand, exhibited superior performances under the monetary incentive conditions.

The similarity between the results obtained in the Wolk and Ducette (1974) study and the present series of studies suggests that the incentive decrement effect obtained under conditions of instruction is not restricted to the AIC task. However, a substantial difference exists in the manner in which instruction is operationalized in the study reported by Wolk and Ducette and in the present experiments. In the former instance, instruction consisted of informing the learners " ... that their knowledge of

'some aspects of the story' would be questioned ..." (Wolk & Ducette, 1974, p. 93); instruction in the present studies consisted of information and examples regarding how to perform the AIC task. In accounting for the decremental effects of incentive in their study, Wolk and Ducette assumed that both cue explication (task-related instructions) and incentives are motivational manipulations. Consequently, the poor performance by learners under conditions of instruction and incentive was attributed to the learners in these conditions "...being overmotivated, an example of the Yerkes-Dodson law." (Wolk & Ducette, 1974, p. 94). This line of reasoning might possibly be extended to the present studies. That is, learners who receive instruction and are told that they must respond rapidly on a posttest in order to receive an incentive may be less able to benefit from instruction than are learners who are not offered an incentive. Clearly, this post-hoc account is highly speculative; the extent to which motivational constructs can account for the decremental effects of incentives obtained in these studies is beyond the scope of the present data.

The consistent attenuative effect of incentive on learner performance under conditions of instruction is perhaps due to one or more of the factors described above or to other variables yet to be identified. The need for further research in this area has been substantiated. Further research efforts can have profound implications for the increased attention that incentives are currently being given in an attempt to enhance school learning (cf. Abt, 1974; Pincus, 1974).

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